



Opti Max4100 1 GHz 4 x 4 Segmentable Node Technical Specifications

General Node Specifications

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Number of Active RF/AC Ports	4		
Number of AC Only Ports	2		
AC Current Passing, A (All Ports)	15		
Physical Dimensions, (W x H x D), in (cm)	20 x 11.7 x 10.2 (50.8 x 29.7 x 25.9)		
Weight, lbs (kg)	43 (19.5)		
Operating Temperature Range, °C	-40 to 60		
Forward Path Specifications			
Optical Specifications			
Optical Input Wavelength, nm	1290 to 1600		
Optical Input Range, dBm	-3 to 3		
RF Specifications			
Operating Passband, MHz	54/70/85 to 1002		
Output Level @ 1002MHz, -3dBm input, 3% OMI, dBmV, min.	53.5		
Level Stability, dB, max.	±1.5		
Gain Slope, dB (Note 1)	17.0 ± 1.0		
Flatness @ Gain Slope, dB (Note 2)	±1.5		
Return Loss, dB, min. (all RF ports)	16.0		
Port to Port Isolation, dB, typ. (870/1002MHz)	70/60		
NTSC Channel Performance (Note 3)	79 Channels (42/54 split)	76 Channels (55/70 split)	79 Channels (85/105 split)
Reference Frequency, MHz	1002/870/550/54	1002/870/550/70	1002/870/550/54
Output Level, dBmV (Note 7)	53.5/51.2/45.4/36.5	53.5/51.2/45.4/36.8	53.5/51.2/45.4/37.4
Carrier to Noise Ratio, 4MHz, 75 Ohm, dB	58.5	58.5	58.5
Composite Triple Beat, -dBc	73	73	73
Composite 2IM, -dBc	67	67	67
Cross Modulation (per NTCTA std.), -dB	70	70	70
Composite Intermodulation Noise, dB (Note 4)	62.5	62.5	62.5

General Node Specifications (cont'd)

PAL/CENELEC Channel Performance (Note 3)	60 PAL Channels (65/85 split)	42 CENELEC Channels (65/85 split)
Reference Frequency, MHz	1002/600/85	870/600/85
Output Level, dBmV	53.5/46.3/37.1	51.2/46.3/37.1
Carrier to Noise Ratio, 4MHz, 75 Ohm, dB	57.5	57.5
Composite Triple Beat, -dBc	71	67
Composite 2IM, -dBc	69	65
Cross Modulation (per NTCTA std.), -dB	61	60
Composite Intermodulation Noise, dB (Note 4)	62	—

Return Path Specifications

RF Specifications

Operating Passband, MHz	5 to 42/55/65
Optimum RF Input Level, dBmV/6MHz	12
Gain Slope, dB	±1.0
Flatness @ Gain Slope, dB	±1.0
Level Stability, dB	±2.5
Return Loss, dB (all RF ports)	16.0
Port to Port Isolation, dB, typ.	70

Opti Max4100 w/ Isolated 1310nm and 1550nm DFB TX Specifications

Transmitted Wavelength, nm	1310 ± 20, 1550 ± 25
Output Power, @ output of connector, dBm	3.0 ± 1.0
NPR Dynamic Range, dB	41/12
Peak NPR, dB, typ.	48
BER Dynamic Range (QPSK), dB	35

Opti Max4100 w/ Isolated DFB Analog CWDM TX Specifications

Transmitted Wavelength, nm	1471 to 1611 ± 6.5nm (8 CWDM channels, 20nm spacing)
Output Power, @ output of connector, dBm	3.0 ± 1.0
NPR Dynamic Range, dB	35/15
Peak NPR, dB, typ.	45
BER Dynamic Range(QPSK/16-QAM), dB	45/35

Opti Max4100 w/ 2:1 TDM Digital TX Specifications (Note 5)

Transmitted Wavelength, nm	1471 to 1611 ± 7.5nm (8 CWDM channels, 20nm spacing)
Output Power, @ output of connector, dBm	3.5 ± 0.5
NPR @ 12 dBmV TX Input, dB, typ.	50, with 0dB attenuation
Peak NPR, dB, min.	48
Dynamic Range @ 40 dB NPR, dB, typ./min.	18/16
BER Dynamic Range(QPSK), dB	45
Link Gain, dB	32, with 0dB TX attenuation and max. gain at RX

General Node Specifications (cont'd)

Powering Requirements (Note 6)	DC Current (mA, max.)			DC Power (W)	AC I/P Current @ 60/90V (A)	AC I/P Power @ 60/90V (W)
	@ 5V	@ 12V	@ 24V			
1 x 4/4 x 1 w/ 1310/1550 IDFB TX	15	745	2275	63.6	1.360/1.020	74.0/75.0
1 x 4/4 x 1 w/ 1310/1550 IDFB TX & EMT	315	745	2400	68.2	1.430/1.060	79.0/83.0
1 x 4/4 x 1 Redundant w/ 1310/1550 IDFB TX	20	805	2400	67.4	1.410/1.060	78.0/80.0
1 x 4/4 x 1 Redundant w/ 1310/1550 IDFB TX & EMT	320	805	2525	71.9	1.550/1.130	87.0/84.0
2 x 2 w/ 1310/1550 IDFB TX	20	1320	2870	84.8	1.790/1.250	100.0/100.0
2 x 2 w/ 1310/1550 IDFB TX & EMT	320	1320	2995	89.3	1.820/1.290	102.0/102.0
2 x 2 Redundant w/ 1310/1550 IDFB TX	30	1440	3120	92.3	1.960/1.360	110.0/109.0
2 x 2 Redundant w/ 1310/1550 IDFB TX & EMT	330	1440	3245	96.8	2.050/1.390	112.0/112.0
4 x 4 w/ 1310/1550 IDFB TX	30	410	4060	102.5	2.150/1.490	122.0/122.0
4 x 4 w/ 1310/1550 IDFB TX & EMT	330	410	4185	107.1	2.250/1.530	124.0/124.0
2 x 2 Redundant or 4 x 4 w/ 2:1 TDM TX	4610	1300	3630	125.8	2.77/1.85	148.0/148.0

Notes:

1. GEQL-1G-110 typically installed at each RF port at the factory to achieve specified tilt (17.0 dB, 42/54 split; 16.7 dB, 55/70 split; 16.4dB, 65/85 split).
2. Maximum roll-off of 1 dB at 51.5MHz.
3. Analog NTSC channels occupying the forward path frequency range up to 550MHz (42/54 and 55/70 splits) or PAL B/G video channels occupying the 85 to 600MHz frequency range (65/85 split) with digitally compressed channels or equivalent broadband noise to 1002MHz at levels 6dB below equivalent video channels. The distortion values listed are for the node only. To obtain a particular link performance, combine the listed node performance values with the applicable transmitter performance values.
4. Systems operating with digitally compressed channels or equivalent broadband noise from 550 to 1002MHz at levels 6dB below equivalent video channels will experience a composite distortion (CIN) appearing as noise in the 54 to 550MHz frequency spectrum.
5. Digital CWDM TXs are only available with the 42/54MHz bandsplit.
6. DC current draw requirements for analog CWDM TXs: add 350mA @12V and 75mA @ 24V for each additional TX. DC current draw requirements for 2:1 TDM digital CWDM transmitters: add 1.5A @ 5V and 130mA @ 12V for each additional transmitter.
7. At the specified operational tilt, the maximum output level for 870 MHz or 1002 MHz loading is 56.5 dBmV at the highest frequency.

See specification document numbers 1500166 (42/54 split), 1501149 (65/85 split), 1501153 (55/70 split), 1500422 (forward RX), 1500237 (1310nm TX), 601241 (1550nm TX), 1500893 (analog CWDM TX), 1500189 (2:1 TDM digital CWDM TX), and 1500481 (power supply) for more detailed specifications.

Specifications are subject to change without notice.

Ordering Information

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